**IT Applications Unit 3, AOS 1, Online Communities**

Complete the following, from pgs, 18-28: **Network hardware and software**

**Networks are classified according to below and we will study the following:**

* Network Categories: LAN, WAN
* Network Architecture, client-server; peer-to-peer; internet peer-to-peer; intranet
* Network communication standards
* Network hardware and software
* Transmission media
* Network security

**Network hardware and software**

**Network Operating Systems**

1. **Describe the role of the Network Operating System**

The Network Operating Systems is software controls the traffic flow on a network and defines how devices communicate with each other. There are two types of software, client software and server software.

1. **What are the typical tasks of network server software?**

Network server software is installed on the network and controls file access, tracks users, validate access to network servers and maintains log of usage and problems.

1. **What is the role of network client software?**

Network client software is installed onto each workstation and establishes connection through the use of a network interface card, NIC.

1. **List the 3 providers of network operating systems**

* Microsoft Windows Vista, Windows 7, etc
* Apple
* Novell

**Web Client Software**

1. **List the typical Client Software**

* Web browsers
* Electronic email
* Videoconferencing
* Instant messaging
* Chat room

**Software for setting up websites**

1. **Describe the role of http protocol**

The http protocol (hypertext transfer protocol), is the standard for transmitting and receiving information using the internet. All servers and computers using the internet must follow the request and response procedure established in the http protocol so that sending and receiving information flows easily and quickly between clients and servers. The http protocol accesses pages that are written in hyper text markup language (html).

1. **What is the role of web server software?**

A web server provides content, usually in html documents and images, using the http protocol. Examples of web server software include Apache and Microsoft Internet Information Services (IIS).

1. **What is the role of a proxy server?**

A proxy server is a server that acts as an intermediary for requests from clients seeking resources from other servers.

1. **What are the advantages of using a proxy server?**

* keeps machines behind it anonymous
* speeds up access to resources, by caching
* block undesired sites
* scan for malware

1. **Describe the role of the following software:**
   1. **SMTP**

Simple Mail Transfer Protocol (SMTP) is used on electronic mail servers to handle the sending and receiving of client emails.

* 1. **POP3**

Post Office Protocol (POP3) is used to store messages.

* 1. **FTP**

File Transfer Protocol (FTP) software that enables files to be uploaded and downloaded between computers on the internet.

* 1. **Web software applications**

Web software applications are programs designed for use on a website and include blogging software, forums and wikis.

**Cross-platform web software**

1. **What is meant by a Cross-platform application? List examples**

Cross platform software applications enable users to share information between computers which run different operating systems, such as Macintosh and Windows.

Examples of cross-platform software applications used in creating websites are Java and Flash.

1. **What is Adobe Flash?**

Adobe Flash is a software tool that provides uncompromised viewing of content with text, three dimensional graphics, audio and video across screens and browsers.

**Network Hardware**

**Describe the characteristics and role of the following network hardware devices:**

* 1. **Network Interface Card**

Network Interface card (NIC) is a chip used to connect a computer or device to a network. The NIC is connected to the network by cables, radio waves, infra red light waves, microwave or fibre optic cable.

* 1. **Wireless access point**

Wireless access point (WAP) is used to connect wireless communication devices to a wired or wireless network.

* 1. **Switches**

Switches are devices which store the addresses of each device connected it. They also direct data packets to the correct destination and enables simultaneous communication between devices.

* 1. **Routers**

A router acts as a junction between two networks. The use of a router enables a user on one LAN the ability to access resources on another LAN. A modem is also a security device that guards the connection between a LAN and the outside world or from another part of the same network. It can be programmed to only allow authorised incoming and outgoing traffic and block certain sites. The modem also contains a built in firewall that can protect all users connected to the network.

* 1. **Modems**

A modem is a communications device that uses telephone lines to send digital computer signals to other modems. The sending modem modulates the computers digital signal into an analogue signal that is compatible with the telephone lines. The signal is then demodulated by the receiving modem into the digital signal which is then transmitted to the receiving computer.

**For each of the following modem types, in a table indicate the following:**

|  |  |
| --- | --- |
| **MODEM** | **DOWNLOAD SPEED** |
| **Dial up modem** | 56kbps |
| **ADSL** | 8mbps |
| **ADSL 2 +** | 20mbps |
| **Broadband Cable** | 30mbps |

1. **How does a digital modem differ from a dial-up modem?**